...i.e. dial the phone, listen for a carrier tone from a remote modem and connect to that ...modem. The modem at the receiving end must be set to "Answer" mode. In any asyn... ...ronous data conversation, one side must be set to "Originate" and the other to ..."Answer." Such settings are usually made in software.

Originate/Answer The two modes of operation for a modem. Originate and answer states define the frequencies used to transmit and receive. In a two-way communication system, one modem must be set to originate and the other to answer.

Originating Direction The use of Access Service for the origination of calls from an End User premise to a customer premise.

Originating Office The central office that serves the calling party.

Originating Restriction A phone line with this restriction cannot place calls at any time. Calls directed to the phone, however, will be completed normally.

Origination A call that is placed by the mobile subscriber, calling either a land-line unit or another mobile subscriber.

Origination Cablecasting Programming over which a cable television system operator exercises editorial control. This term includes programming produced by the operator, Non-broadcast local programming produced by other entities and carried voluntarily by the system. Example: PRISM; regional news channels; Satellite-delivered non-broadcast programming carried voluntarily by the system, such as HBO, ESPN, CNN, C-SPAN, QVC, etc.

This term does not include programming over which the operator does not exercise editorial control, including any broadcast signal, including satellite-delivered broadcast "superstations" (WGN-TV, WWOR, etc.); Any access channel designated by franchise for public, educational, or governmental use; Leased-access channels.

The cable system operator is required by Section 76.225c of the FCC Rules to maintain records, in the PIF, to verify compliance with rules governing commercial matter in children's programming carried on origination-cablecasting channels. See PIF.

Originator The user that is the ultimate source of a message or probe.

ORM Optically Remote Module. A type of switching module made by AT&T which connects directly to the 5ESS switch communications module via optical fibers.

Orphan A Windows NT term. A member of a mirror set or a stripe set with parity that has failed in a severe manner, such as a loss of power or a complete head crash. When this happens, the fault-tolerance driver determines that it can no longer use the orphaned member and directs all new reads and writes to the remaining members of the fault-tolerant volume.

Orthogonal Having, meeting or determined at right angles.

Orthogonal Frequency Division Multiplexing See OFDM.

OS 1. Outage Seconds.

2. Operating System, as in MS-DOS (Microsoft Disk Operating System), Windows NT, Windows 2000, Windows XP, Solaris, Unix, Linux, Symbian or OS/2. See Operating System.

3. Operator Services. See Operator Services.

4. Operations System. Includes SCOTS, FMAS, etc.

OS/2 Operating System/2. An operating system originally developed by IBM and Microsoft for use with Intel's microprocessors and for use with IBM personal system/2 personal computers. OS/2 has pretty well died. Microsoft's various flavors of Windows survive it.

Osborne Effect Once there was a personal computer company called Osborne Computer Company. One day, the president announced a revolutionary new computer. It was so good not one of his dealers wanted to (or could) sell the existing product and they sent all their inventory back. Meantime, it was six months before the company could deliver the new product. But without any sales in the meantime, it had no money and Osborne went broke. There is a lesson here for companies who are attempting to manage transition between old and new product lines. Be careful, or suffer the horrible consequences of The Osborne Effect.

Oscar Hollywood gives our Oscars for great movies, performances, etc. Apparently when the first statue was cast, someone quipped, "My God. It looks like my uncle Oscar." Apparently it stuck.

Oscillator 1. A device for generating an analog test signal.

2. Electronic circuit that creates a single frequency signal.

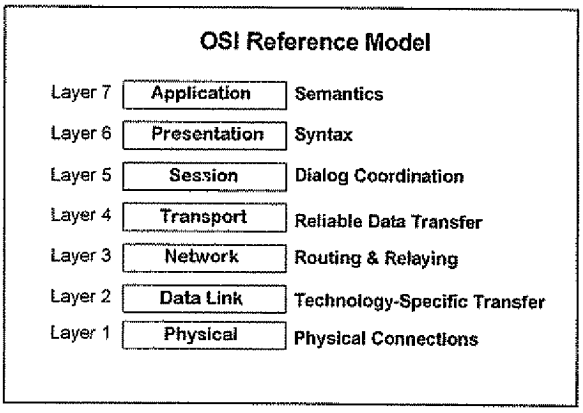
Oscilloscope Electronic testing device that can display wave forms and other information on a TV-screen-like cathode ray tube. A basic fixture in sci-fi movies.

OSDM Optical Spatial Division Multiplexing is a technology developed to improve the efficiency with which SONET (Synchronous Optical NETwork) supports bursty packet data traffic such as LAN traffic. OSDM accomplishes this by dynamically allocating arbitrary levels of bandwidth to such traffic, guaranteeing minimum levels that are supplemented by higher levels of bandwidth as it becomes available. OSDM is a protocol-independent, self-contained technology that adapts to various current and developing physical layer technologies such as digital wrappers and DWDM (Dense Wavelength Division Multiplexing).

OSF Open Software Foundation. An industry organization founded in 1988 to deliver technology innovations in all areas of open computer systems, including interoperability, scalability, portability and usability. The OSF was an international coalition of vendors and users in industry, government and academia that worked to provide technology solutions for a distributed computing environment. In February 1996, the OSF consolidated with X/Open Company Ltd. to form The Open Group. See The Open Group. www.opengroup.org.

OSF/1 Version 1 of the Open Software Foundation's Unix-based operating system

OSI Open Systems Interconnection. A Reference Model developed by the ISO (International Organization for Standardization, as translated into English). The OSI Reference Model is the only internationally accepted framework of standards for communication between different systems made by different vendors. ISO's goal is to create an open systems networking environment where any vendor's computer system, connected to any network, can freely share data with any other computer system on that network or a linked network. Most of the dominant communications protocols used today have a structure based on the OSI model. Although OSI is a model and not an actively used protocol, and there are still very few pure OSI-based products on the market today, it is still important to understand its structure. The OSI model organizes the communications process into seven different categories and places these categories in a layered sequence based on their relation to the user. Layers 7 through 4 deal with end to end communications between the message source and the message destination, while layers 3 through 1 deal with network access.



Layer 1 — The Physical Layer deals with the physical means of sending data over lines (i.e., the electrical, mechanical and functional control of data circuits). Examples include EIA-232 (RS-232), T-carrier and SONET.

Layer 2 — The Data Link Layer is concerned with procedures and protocols for operating the communications lines. It also has a way of detecting and correcting message errors. Examples include Frame Relay, PPP (Point-to-Point Protocol), and SLIP (Serial Line Internet Protocol). ATM runs at Layers 1 & 2, as do LANs.

Layer 3 — The Network Layer determines how data is transferred between computers. It also addresses routing within and between individual networks. The most visible example is IP (Internet Protocol).

Layer 4 — The Transport Layer defines the rules for information exchange and manages end-to-end delivery of information within and between networks, including error recovery and flow control. TCP (Transmission Control Protocol) is an example, as is the OSI Transport Protocol (TP), which comprises five layers of its own. Layer 4 protocols ensure end-to-end integrity of the data in a session. The X.25 packet-switching protocol operates at Layers One, Two, Three, and Four.

Layer 5 — The Session Layer is concerned with dialog management. It controls the use of the basic communications facility provided by the Transport layer. If you've ever lost

your connection while Web surfing, you've likely experienced a session time-out, so you have some sense of the Session Layer.

Layer 6 — The Presentation Layer provides transparent communications services by masking the differences of varying data formats (character codes, for example) between dissimilar systems. Conversion of coding schemes (e.g., ASCII to EBCDIC to Unicode), and text compression and decompression exemplify Presentation Layer functions.

Layer 7 — The Applications layer contains functions for particular applications services, such as file transfer, remote file access and virtual terminals. TCP/IP application protocols such as FTP (File Transfer Protocol), Simple Mail Transfer Protocol (SMTP), SNMP (Simple Network Management Protocol) and TELNET (TELecommunications Network) take place at Layer 7.

See also OSI Standards, which compares Layers 1 through 2 on OSI to making a phone call on the public switched telephone network. .

OSI Model Open Systems Interconnection Model. See OSI.

OSI Network Address The address, consisting of up to 20 octets, used to locate an OSI Transport entity. The address is formatted into an Initial Domain Part which is the responsibility of the addressing authority for that domain and a domain-specific part which is the responsibility of the addressing authority for that domain.

OSI Presentation Address The address used to locate an OSI Application entity. It consists of an OSI Network Address and up to three selectors, one each for use by the Transport, Session, and Presentation entities.

OSI Standards The International Standards Organization (ISO) has established the Open Systems Interconnection (OSI) Reference Model is to provide a standar network design framework to allow equipment from different vendors to be able to communicate. Standards allow us to buy items such as batteries and light bulbs. Many of us have learned "the hard way" that the lack of computer standards can make it impossible for computers from different vendors to talk to each other. Because a major goal of a LAN (Local Area Network) is to connect varied systems, standards have been developed to specify the set of rules networks will follow. The OSI Model is a design in which groups of protocols, or rules for communicating, are arranged in layers. Each layer performs a specific data communications function. The concept of layered protocols is analogous (but not identical) to the steps we follow in making a phone call:

Step 1 — Listen for dial tone.

Step 2 — Dial a phone number.

Step 3 — Wait for a ring.

Step 4 — Exchange greetings to check that the connection is made and we're speaking the same language.

Step 5 — Talk, i.e. communicate messages back and forth.

Step 6 — Prepare to end conversation. For example, say Goodbye.

Step 7 — Take physical action. Hang up.

Each of these steps, or OSI "layers," builds upon the one below it. Although each step must be performed in preset order, within each layer there are several options. Within the OSI model, there are seven layers. The first three are the Physical (PHY), Data Link (DLL), and Network layers, all of which are concerned with data transmission and routing. The last three — Session, Presentation and Application — focus on user applications. The fourth layer, Transport, provides an interface between the first and last three layers. The X.25 Protocol which created a standard for data transmission and routing is equivalent to the first three layers of the OSI Reference Model." See also OSI and X.25.

OSINet A test network sponsored by the National Bureau of Standards (NBS) designed to provide vendors of products based on the OSI model a forum for doing interoperability testing.

Osmics The science of smells. See Snortal.

OSMINE Operations System Modifications for the Integration of Network Elements. OSMINE enables equipment used by Regional Bell Operating Companies (RBOCs) and other service providers to be managed effectively from the same software program, helping to ensure multi-vendor interoperability.

OSN Operations System Network.

OSP 1. Operator Service Provider. A new breed of long distance phone company. It handles operator-assisted calls, in particular Credit Card, Collect, Third Party Billed and Person-to-Person. Phone calls provided by OSP companies are often more expensive than phone calls provided by "normal" long distance companies, i.e. those which have their own long distance networks and which you see advertised on TV. You normally encounter an OSP only when you're making a phone call from a hotel or hospital phone, or privately-owned payphone. It's a good idea to ask the operator what the cost of your call will be before you make it.

2. Online Service Provider. A company that provides content only to subscribers of that service. This content is not available to regular Web surfers. The idea was to build subscription and other revenues from a closed knit group of people. The problem with this idea was the Internet came along and no one any longer could afford a team to compete with the Web's exploding and varied content. So, some online service providers dropped their attempt at content altogether. Others severely limited it. But all were forced to offer (and do offer) access to the Internet. As a result the term "online service provider" has virtually become obsolete, to be replaced by the term, Internet Service Provider.

OSPF Open Shortest Path First. My definition is that OSPF is a link-state routing algorithm that is used to calculate routes based on the number of routers, transmission speed, delays and route cost. Here's a longer explanation from Alcatel:

Open Shortest Path First (OSPF) as described in RFC 1245 and RFC 1583 is a routing protocol designed for larger or more complex networks than those typically supported by the Routing Information Protocol (RIP). OSPF uses link state and interior gateway protocols to create a network map on each router and then uses the Dijkstra shortest path algorithm to find the optimum path between network devices. RIP has visibility only to the next hop and uses the distance vector algorithm.

Link state protocol algorithms determine the state of, or status of, each link connected to the router. In a network each router constructs a link state advertisement (LSA) with the status of its links and transmits this to its neighbors. Each router builds a list of all routes to all destinations, based on the compilation of LSAs from each router. Each router identifies which routers and subnets are directly connected to it. Then, it distributes this information to all other routers. OSPF routers take the information and build a table of what the network looks like. Using this table, each router can identify where the sub-networks are located, what routers are in direct connection, and how to get to any specific route.

As an interior gateway protocol, OSPF distributes routing information between routers in a single autonomous system. Once all routers have constructed their databases based on the LSA information, they run the Shortest Path First Algorithm. This results in a tree structure with each router at the "root" of its own tree, and the shortest path to all other destinations mapped out. The selection of the path to these destinations is based on metrics. These metrics may be based on hop count, bandwidth, load, cost, reliability, delay, or controlled statically by the user. This provides the network manager greater control over how routing occurs in the network. Dijkstra's Shortest Path Algorithm is a mathematical process by which it is possible to find the shortest path between points. Essentially, the Dijkstra Shortest Path Algorithm calculates the cost of a path between points beginning with the closest points to the starting point and works its way outward until it reaches the desired end point. A high bandwidth link costs less because more information can be sent across it at one time. Conversely, a lower speed/smaller bandwidth connection costs more because it is not able to send information as quickly. For instance, when sending packets across a 56k point-to-point serial connection there is more delay and overhead than if the same packet was sent over a 100Mbps Ethernet connection. Therefore, it would cost more time to send a transmission over the 56k connection compared to the 100Mbps connection.

OSPF is an excellent protocol in a larger network because it can build a map of large complex networks and then navigate a path between two of the network devices with reliability of the entire network providing the most efficient routing paths possible. Because of its ability to handle large complex networks, OSPF can be complex for the network manager to configure and set up and requires greater computing power within the router. However, OSPF is often the routing protocol of choice when configuring larger networks due to its ability to quickly adapt to network changes (faster route convergence), judge network metrics, area-based topology, low traffic overhead and the ability to support complex address structures and route summarization. Such speed and efficiency means maximized bandwidth usage, faster routing compared to other comparable protocols (RIPv2), lower network latency and better overall network performance, which is especially useful in networks where bandwidth is at a premium such as in a WAN.

OSPFIGP Open Shortest-Path First Internet Gateway Protocol. An experimental replacement for RIP. It addresses some problems of RIP and is based upon principles that have been well-tested in non-internet protocols. Often referred to simply as OSPF. See OSPF.

OSPR Optical Shared Protection Ring.

OSPS An AT&T word for Operator Services Position System.

OSS Operations Support System. Methods and procedures (mechanized or not) which directly support the daily operation of the telecommunications infrastructure. The overall

LEC (Local Exchange Carrier) has hundre
mpany order negotiation, order processing
OSS7 Operator Services Signaling Syste
OSSI Operations Support System Inter
Service Interface Specification), a project
high-speed data transfer over cable televis
OSSI provides the interface between the
according to the OSI (Open Systems Inte
faults, performance, configuration, securit
OSTA The Optical Storage Technology A
ociated to promoting the use of writable
images. With a membership of more th
define practical implementations of stand
ards. www.osta.org.
OTA Over The Air. See also Preferred R
OTASP Over-The-Air Service Provisionin
services over the network, rather than re
ing a shop for programming.
OTC Operating Telephone Company.
OTDR Optical Time Domain Reflectome
check the accuracy of fusion splices and
and Optical Time Domain Reflectometer.
OTGR Operations Technology Generic
Other Common Carrier OC
roviders of long distance telephone s
Common Carriers. All long distance carrie
change carriers.
OTIA NTIA's Office of Telecommunica
state and local governments, education
agencies, and other groups in effectivel
nologies to better provide public services
ssisted through the administration
Infrastructure Assistance Program (TIIAP)
(PTFP) and the National Endowment f
Telecommunications and Information Inf
spread use of advanced telecommunicati
nonprofit sectors. The program provides
governments, health care providers, sch
public safety services, and other non-pro
structures and services that are accessib
The program was specifically created
Information Infrastructure. The Public T
expansion and improvement of public t
grants for equipment that disseminate n
the American public. The main objective
radio and television to unserved areas
ry, funds are also allocated to support t
by satellite (PEACESAT) project. PEACE
and environmental emergency telecom
ations in the Pacific Ocean. The Nationa
supports the creation and production o
ion of children. The program provides n
designed to supplement the current cli
on the fundamental intellectual skills
Advisory Council on Children's Educati
Commerce on funding criteria for the p
review. See www.ntia.doc.gov/otiahom
Otlet, Paul A Belgian lawyer wh
the idea of a Universal Network for Inf
be gained through multimedia worksta
OTN See Optical Transport Network.
OTOH Abbreviation for "On The O
(Bulletin Board Systems).